Claims:

1. A polypeptide selected from the group consisting of AAAFGLTLLEQLDLSDNAQLR (SEQ ID NO: 26); LDLSDNAQLR (SEQ ID NO: 27); LDLSDDAELR (SEQ ID NO: 29); LDLASDNAQLR (SEQ ID NO: 30); LDLASDDAELR (SEQ ID NO: 31); LDALSDNAQLR (SEQ ID NO: 32); LDALSDDAELR (SEQ ID NO: 33); LDLSSDNAQLR (SEQ ID NO: 34); LDLSSDEAELR (SEQ ID NO: 35); DNAQLRVVDPTT (SEQ ID NO: 36); DNAQLR (SEQ ID NO: 37); ADLSDNAQLRVVDPTT (SEQ ID NO: 41); LALSDNAQLRVVDPTT (SEQ ID NO: 42); LDLSDNAALRVVDPTT (SEQ ID NO: 43); LDLSDNAQLHVVDPTT (SEQ ID NO: 44); and LDLSDNAQLAVVDPTT (SEQ ID NO: 45).

2. A nucleic acid encoding a polypeptide according to claim 1.

3. The nucleic acid according to claim 2 operably linked to an expression control sequence.

4. A vector comprising the nucleic acid according to claim 2 or 3.

5. A host cell comprising the nucleic acid according to claim 2 or 3 or comprising the vector according to claim 4.

6. A method of producing the polypeptide according to claim 1 comprising the steps of

(a) culturing the host cell according to claim 5; and

(b) recovering the polypeptide from the host cell or culture medium.

7. A method of producing an antibody comprising the steps of:

(a) immunizing a host with a polypeptide according to claim 1 or a host cell according to claim 5; and

(b) recovering the antibody.

8. An antibody produced by the method according to claim 7 or an antigen-binding fragment of said antibody.

9. An antibody or an antigen-binding fragment thereof that specifically binds to a polypeptide according to claim 1,

wherein the antibody is not the monoclonal antibody produced by hybridoma cell line HB 7E11 (ATCC® accession No. PTA-4587).

10. The antibody or antigen-binding fragment according to claim 8 or 9, wherein the antibody

(a) inhibits growth cone collapse of a neuron;

(b) decreases the inhibition of neurite outgrowth and sprouting in a neuron; and

(c) inhibits Nogo receptor-1 binding to a ligand.

11. The antibody or antigen-binding fragment according to claim 10, wherein the neurite outgrowth and sprouting is axonal growth.

12. The antibody or antigen-binding fragment according to claim 10, wherein the neuron is a central nervous system neuron.

13. The antibody or antigen-binding fragment according to claim 8 or 9, wherein the antibody is a monoclonal antibody.

14. The antibody or antigen-binding fragment according to claim 8 or 9 wherein the antibody is a murine antibody.

15. The antibody according to claim 8 or 9, wherein the antibody is selected from the group consisting of a humanized antibody, a chimeric antibody and a single chain antibody.

16. A method of inhibiting Nogo receptor-1 binding to a ligand, comprising the step of contacting Nogo receptor-1 with an antibody or antigen-binding fragment according to claim 10.

17. The method according to claim 16, wherein the ligand is selected from the group consisting of NogoA, NogoB, NogoC, MAG and OM-gp.

18. A method for inhibiting growth cone collapse in a neuron, comprising the step of contacting the neuron with the antibody or antigen-binding fragment thereof according to claim 10.

19. A method for decreasing the inhibition of neurite outgrowth or sprouting in a neuron, comprising the step of contacting the neuron with the antibody or antigen-binding fragment thereof according to claim 10.

20. The method according to claim 19, wherein the neurite outgrowth or sprouting is axonal growth.

21. The method according to claim 18 or 19 wherein the neuron is a central nervous neuron.

22. A composition comprising a pharmaceutically acceptable carrier and the antibody or an antigen-binding fragment according to claim 8 or 9.

23. The composition according to claim 22 further comprising one or more additional therapeutic agents.

24. A method of promoting survival of a neuron at risk of dying, comprising contacting the neuron with an effective

amount of an anti-Nogo receptor-1 antibody or antigen-binding fragment according to claim 8 or 9.

25. The method of claim 24, wherein the neuron is *in vitro*.

26. The method of claim 24, wherein the neuron is in a mammal.

27. The method of claim 26, wherein the mammal displays signs or symptoms of multiple sclerosis, ALS, Huntington's disease, Alzheimer's disease, Parkinson's disease, diabetic neuropathy, stroke, traumatic brain injuries or spinal cord injury.

28. A method of promoting survival of a neuron in a mammal, which neuron is at risk of dying, comprising

(a) providing a cultured host cell expressing an anti-Nogo receptor-1 antibody or antigen-binding fragment thereof according to claim 8 or 9; and

(b) introducing the host cell into the mammal at or near the site of the neuron.

29. A gene therapy method of promoting survival of a neuron at risk of dying, which neuron is in a mammal, comprising administering at or near the site of the neuron a viral vector comprising a nucleotide sequence that encodes an anti-Nogo receptor-1 antibody or antigen-binding fragment thereof according to claim 8 or 9, wherein the anti-Nogo receptor-1 antibody or antigen-binding fragment is expressed from the nucleotide sequence in the mammal in an amount sufficient to promote survival of the neuron.